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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/573,696

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Volker Leimbach

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EXAMINER

HANSEN, JONATHAN M

ART UNIT

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2886

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/573,696	Applicant(s) LEIMBACH ET AL.	
	Examiner JONATHAN M. HANSEN	Art Unit 2886	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 14-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 14-21, 25-28 is/are rejected.
- 7) ☒ Claim(s) 22-24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims **1-17, 20, 21, 25 and 26** are rejected under 35 U.S.C. 102(b) as being anticipated by **US Publication 2002/0030886 to Bewersdorf et al.**

In regards to claim **1**, Bewersdorf discloses and shows in Figures 1 and 3 below, a 4Pi microscope comprising:

an interferometer in which two objectives (7 and 8) are positioned to oppose one another on different sides of an object plane (6), and having an optical element (5) for coupling illuminating light (1) into the interferometer and for coupling detected light (23 and 24) out of the interferometer and for directing it into a detection beam path (22), a detected light portion

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being coupled out by the optical element and not directed into the detection beam path (par. 76 and 77); and

a reflecting device (33) configured to reflect illuminating light coupled out by the optical element back into the interferometer and to reflect the detected light portion coupled out by the optical element that is not directed into the detection beam path back into the interferometer (par. 76 and 77).

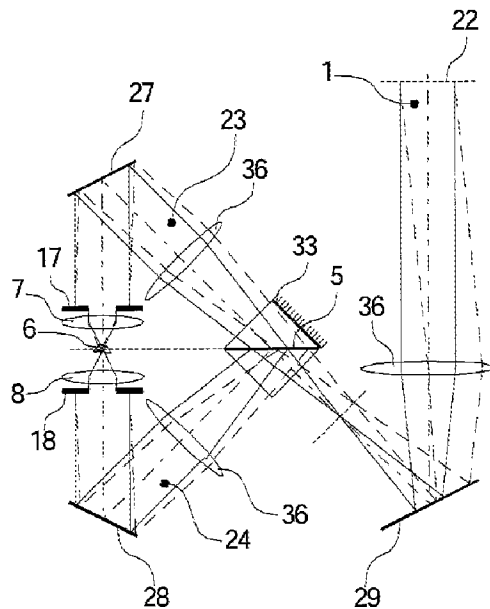


Fig. 1

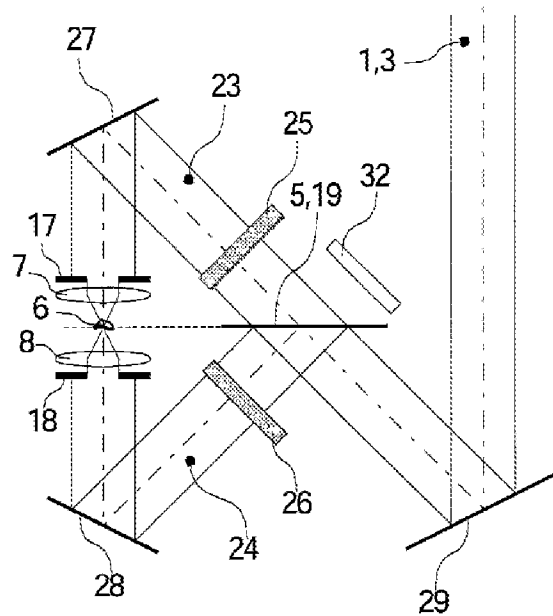


Fig. 3

In regards to claim **14**, Bewersdorf discloses the 4Pi microscope, wherein the optical element includes at least one beam splitter (par. 17).

In regards to claim **15**, Bewersdorf discloses the 4Pi microscope, wherein the beam splitter is a beam splitter cube (Figure 1).

In regards to claim **16**, Bewersdorf discloses the 4Pi microscope, wherein the reflecting device (33) is positioned directly at the beam splitter (5) (Figure 1).

In regards to claim **17**, Bewersdorf discloses the 4Pi microscope, wherein the reflecting device includes an at least partially reflective coating (par. 18).

In regards to claim **20**, Bewersdorf discloses the 4Pi microscope, wherein the reflecting device includes a mirror (par. 17).

In regards to claim **21**, Bewersdorf discloses the 4Pi microscope, wherein the mirror is convex (par. 77).

In regards to claim **25**, Bewersdorf discloses the 4Pi microscope, wherein the reflecting device is semi-reflecting (par. 18).

In regards to claim **26**, Bewersdorf discloses the 4Pi microscope, further comprising a detector (33) (applicant's camera) to receive at least one of illuminating and detected light passing through the reflecting device (par. 76 and 49).

While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. In re Schreiber, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997) (The absence of a disclosure in a prior art reference relating to function did not defeat the Board's finding of anticipation of claimed apparatus because the limitations at issue were found to be inherent in the prior art reference); see also In re Swinehart, 439 F.2d 210, 212-13, 169 USPQ

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226, 228-29 (CCPA 1971); In re Danly, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959).

"[A]pparatus claims cover what a device is, not what a device does." Hewlett-Packard Co. v.

Bausch & Lomb Inc., 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990) (emphasis in original).

In view of this, limitations following "configured to" are not positive limitations and thus are not given patentable weight.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim **18** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Bewersdorf**, in view of **US Patent 4,790,616 to Frenkel et al.**

In regards to claim **18**, Bewersdorf differs from the limitations in that he is silent to, wherein the reflecting device is vapor- deposited onto the beam splitter.

However, Frenkel teaches the use of vapor-deposition to add film layers to beam splitters and other such optical devices for the advantage of applying the known technique to a known device to yield predictable results (abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to add a film layer to the beam splitter by vapor-deposition for the advantage of applying the known technique to a known device to yield predictable results.

Further, as discussed above Bewersdorf discloses the claimed apparatus including the reflective device (33). It has been held that, “Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” (MPEP 2113)

Claim **19** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Bewersdorf**, in view of **US Publication 2006/0146340 to Szwaykowski et al.**

In regards to claim **19**, Bewersdorf differs from the limitations in that he is silent to wherein the reflecting device has color-selective reflecting properties

However, Szwaykowski teaches a beam splitter that uses wavelength selective surfaces in lieu of optical filters to limit the wavelengths that are transmitted and reflected (par. 52).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Bewersdorf to wherein the reflecting device has color-selective reflecting properties for the advantage of substituting optical filters for wavelength selective surfaces to yield predictable results.

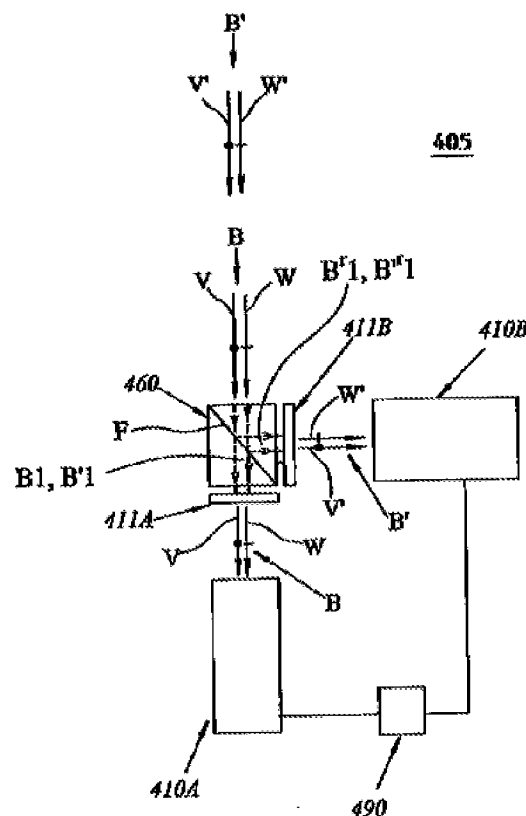


FIG. 4B

Claim **27** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Bewersdorf**, in view of **US Publication 2002/0186380 to Drake**.

In regards to claim **27**, Bewersdorf discloses the 4Pi microscope, further comprising:
a light source (1) configured to produce the illuminating light (par. 34).

He differs in that he does not explicitly disclose an optical isolator disposed between the light source and the optical element; wherein the optical isolator includes a Faraday rotator.

However, Drake teaches a system with applications to optical interferometry that utilizes optical isolators, like a Faraday rotator, to prevent back-reflected light from entering into a light source for the advantages of preventing wavelength drift and linewidth broadening (par. 18, 44 and 45).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Bewersdorf to include an optical isolator, specifically a Faraday rotator, for the advantages of preventing back-reflected light from entering into a light source, wavelength drift and linewidth broadening.

Allowable Subject Matter

Claims **22-24** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As to claim **22**, the prior art of record, taken alone or in combination, fails to disclose or render obvious a delay element configured to compensate for phase jumps, the delay element arranged between the optical element and the reflecting device, in combination with the rest of the limitations of the claim. Claims 23 and 24 are dependent upon claim 22.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JONATHAN M. HANSEN whose telephone number is (571)270-1736. The examiner can normally be reached on Monday through Friday 9:30AM to 6:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tarifur Chowdhury can be reached on 571-272-2287. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JMH
/TARIFUR R CHOWDHURY/
Supervisory Patent Examiner, Art Unit 2886